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## **Are Dishonest Extraverts More Harmful than Dishonest Introverts? The Interaction Effects of Honesty-Humility and Extraversion in Predicting Workplace Deviance**

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Honesty-Humility, one of the six major personality dimensions included in the HEXACO model of personality structure, has previously been found to show negative correlations with workplace deviance. In this study, we hypothesised that Extraversion would moderate the relationship between Honesty-Humility and workplace deviance. In particular, we posited that the relation between Honesty-Humility and workplace deviance would be stronger among employees who are high on Extraversion than among those low on Extraversion. The hypothesis was tested using three different samples across Australia, Canada, and the Netherlands. It was found in two of the three samples that high levels of Extraversion did indeed amplify the relationship between (low) Honesty-Humility and workplace deviance. Results suggest a potentially important role for multiplicative effects of personality variables on workplace criteria.

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## INTRODUCTION

Research on personality has been one of the most rapidly advancing fields in personnel psychology since the early 1990s. This is arguably attributable to several contributions and trends: (a) the development of a widely accepted generic taxonomy to classify numerous personality traits into five major factors, those of the Big Five or Five-Factor Model (FFM) of personality (Costa & McCrae, 1992; Digman, 1990; Goldberg, 1993); (b) the impact of meta-analysis (validity generalisation) methods on understanding the relations between personality and performance (e.g. Barrick & Mount, 1991; Hurtz & Donovan, 2000; Schmidt, Shaffer, & Oh, 2008); (c) the need for new research on additional predictors other than general mental ability (GMA) in the field of personnel psychology; (d) the much weaker adverse impact of personality, relative to GMA, on hiring of racial minority applicants, a finding that is appealing to researchers and practitioners (Sackett, Schmitt, Ellingson, & Kabin, 2001); and (e) the expansion of the job performance domain to include contextual and counterproductive performance, which makes personality variables become increasingly important as predictors for this expanded criterion space (e.g. Berry, Ones, & Sackett, 2007a; Borman & Motowidlo, 1993; Organ & Ryan, 1995; Rotundo & Sackett, 2002).

Further advances in our understanding of the relationship between personality and job performance, however, are still desirable (Morgeson, Campion, Dipboye, Hollenbeck, Murphy, & Schmitt, 2007). One promising yet relatively unexplored avenue for further research involves the interactive effects among personality traits in the prediction of various workplace criteria. As Witt, Burke, Barrick, and Mount (2002) have suggested, the effect of a personality trait may depend upon the level of other traits, particularly when the personality traits are congruent with the demand of the job under investigation. Following this suggestion, we investigated interaction effects of previously unexplored personality traits on workplace deviance, a relatively under-researched criterion variable in this line of research. By doing so, we also heeded the call of other personality researchers who maintain that we should go beyond linear, bivariate, and additive relationships between personality traits and job performance (Le, Oh, Robbins, Ilies, Holland, & Westrick, 2011; Ones, Dilchert, Viswesvaran, & Judge, 2007; Tett & Christiansen, 2007) to be more informative and predictive.

## Research on the Interaction Effects of Personality Traits

Previous research has shown that interactive effects of personality traits can add incremental gains in predicting workplace criteria above and beyond the additive effect of the corresponding personality traits. For example, Witt et al. (2002) conducted a multi-sample study to test their hypothesis that the

positive effect of Conscientiousness on job performance would be significantly reduced when employees are not interpersonally sensitive because conscientious yet disagreeable employees may be seen as “micromanaging, unreasonably demanding, inflexible, curt, and generally difficult to deal with” (Witt et al., 2002, p. 165). The hypothesis received empirical support in the context of jobs that involve frequent interpersonal interactions as a major job requirement. In other studies, significant synergistic, rather than compensatory, interactions of personality traits have also been reported with respect to Emotional Stability and Extraversion (Judge & Erez, 2007) and to Conscientiousness and Extraversion (Witt, 2002). Most of the relatively few studies that have investigated interactions between personality traits have adopted overall job performance as the primary criterion variable (e.g. Judge & Erez, 2007; Witt, 2002).

There is evidence that personality traits are more relevant to non-task aspects of performance, such as contextual performance and counterproductivity, than they are to task performance (e.g. Borman & Motowidlo, 1993; McHenry, Hough, Toquam, Hanson, & Ashworth, 1990; Motowidlo, Borman, & Schmitt, 1997; Motowidlo & Van Scotter, 1994). Specifically, Borman and Motowidlo (1993) made the case that the prediction of task performance is mainly driven by GMA, whereas the prediction of non-task performance (such as contextual performance and counterproductivity) is mainly driven by personality variables such as Conscientiousness and Agreeableness (cf. Berry et al., 2007a; Organ & Ryan, 1995). Further, Borman and Motowidlo (1993) argued that task activities generally vary across jobs even in the same organisation, while non-task activities are common to most jobs across organisations. Thus, this notion suggests first that personality traits as predictors of job performance are likely to be more pertinent to non-task, rather than task, performance, and second that the interactive effects of personality traits on performance are likely to be more substantial for non-task performance than for task performance (or overall job performance). Nevertheless, few studies have investigated the issues related to the interactive effects of personality traits using criteria other than overall job performance. An exception is a study conducted by King, George, and Hebl (2005), which examined contextual performance (aka organisational citizenship behavior) as the criterion variable. In that study, Conscientiousness was found to interact synergistically with other interpersonally oriented personality traits such as Agreeableness, Extraversion, and Emotional Stability in influencing contextual performance. The results reported by King et al. (2005) suggest that examining non-task performance might be particularly useful for studies examining the combined effects of personality traits.

In the present research, we investigated the interaction effects of certain personality traits on another form of non-task performance; specifically, workplace deviance, or counterproductive workplace behavior. This type of

workplace behavior has been defined as any intentional behavior on the part of the organisational member that is viewed by the organisation and its constituencies as dysfunctional, antisocial, and contrary to the organisation's legitimate interests (Bennett & Robinson, 2000; Colbert, Mount, Harter, Witt, & Barrick, 2004; Marcus & Schuler, 2004; Sackett, 2002). It includes a variety of behaviors ranging from relatively minor misbehaviors such as spreading rumors and littering one's environment to severely disruptive behaviors such as physical violence, theft, and sabotaging equipment or work products.

Recently, workplace deviance was found to be associated, in the negative direction, with the personality dimension of Honesty-Humility (Lee, Ashton, & de Vries, 2005a; Marcus, Lee, & Ashton, 2007). In the present research, we hypothesised that individuals' level of Extraversion can moderate the relationship between (low) Honesty-Humility and workplace deviance, and we tested this hypothesis in samples from three countries. Below, we first review previous studies exploring the relationships of workplace deviance to Honesty-Humility and Extraversion, and we then state the hypothesis to be tested in the present research.

## Honesty-Humility and Workplace Deviance

The well-known "Big Five" or "Five-Factor Model" of personality structure was originally derived from lexical studies of personality structure (see, e.g. Ashton & Lee, 2005a; Goldberg, 1993; McCrae, 1989), which use the personality lexicons of natural languages as variable sets that represent the full domain of personality. However, recent reviews of lexical studies conducted in diverse languages indicate that there are six, not just five, factors that have repeatedly emerged in similar form (see Ashton, Lee, Perugini, Szarota, de Vries, Di Blas, Boies, & De Raad, 2004). These studies have involved such diverse languages as Dutch, French, German, Hungarian, Italian, Korean, and Polish, as well as (more recently) Croatian, Filipino, Greek, English, and Turkish (see review by Ashton & Lee, 2007). These six factors include five variants of the Big Five, plus an additional factor named Honesty-Humility. Honesty-Humility is represented by adjectives such as *sincere*, *fair*, and *unassuming* versus *sly*, *greedy*, and *pretentious* (Ashton et al., 2004), and is strongly correlated with the opposite pole of the "Dark Triad" traits of Machiavellianism, Narcissism, and Psychopathy (Lee & Ashton, 2005). As such, Honesty-Humility is generally defined as "the tendency to be fair and genuine in dealing with others, in the sense of cooperating even when one might exploit them" (Ashton & Lee, 2007, p. 156). On the basis of the above lexical findings, Lee and Ashton (2004) developed the HEXACO Personality Inventory to operationalise the six factors of personality—Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness,

and Openness to Experience—that were replicated in those studies. Apart from Honesty-Humility, the space spanned by the remaining factors in the HEXACO personality model broadly resembles that of the classic Big Five (see Ashton & Lee, 2005b; Lee, Ogunfowora, & Ashton, 2005c), although the rotational positions of HEXACO Agreeableness and HEXACO Emotionality differ somewhat from those of Big Five Agreeableness and (low) Emotional Stability (see Ashton & Lee, 2007).

Many of the behavioral tendencies associated with Honesty-Humility (sincerity, fairness, avoidance of greed, and modesty) suggest that this construct should have a negative relationship with the tendency to engage in workplace deviance. More specifically, those with low Honesty-Humility have a propensity for opportunism, greed, and deviance while those with high Honesty-Humility have a propensity for modesty, loyalty, and cooperation (Ashton & Lee, 2007). In the context of the workplace, this suggests that employees with low Honesty-Humility are more likely to behave in their own interest at the expense of the best interest of their employer.

Relatedly, Lee et al. (2005a) reported that Honesty-Humility provided incremental validities in predicting workplace deviance (delinquent behavior and employee integrity) beyond the validities yielded by HEXACO variants of the Big Five ( $.10 \leq \Delta R \leq .13$ ) or by traditional Big Five inventories ( $.10 \leq \Delta R \leq .15$ ). In addition, another study based on a sample of 264 Korean employees (Lee, Ashton, & Shin, 2005b) also indicated that Honesty-Humility (as measured by ratings on personality-descriptive adjectives) had moderate to strong incremental validities over the Big Five for counterproductive behaviors ( $\Delta R = .04$  for interpersonal counterproductive behavior and  $\Delta R = .10$  for organisational counterproductive behavior). Oh, Le, Kim, and Yoo (2006) found that Honesty-Humility provided significant incremental validities for contextual and adaptive performance over GMA and the Big Five in a military setting. Recently, Marcus et al. (2007) found overall meaningful incremental validity of Honesty-Humility over integrity tests and HEXACO variants of the Big Five in predicting counterproductive behaviors in work and academic settings in two independent studies based on a large number of employees and students in Canada and Germany, respectively. Interestingly, both studies conducted by Lee et al. (2005b) and by Marcus et al. (2007) showed that the corrected correlations between Honesty-Humility and integrity tests for unreliability in both traits ranged between .50 and .66, which is strong, yet not approaching unity. Berry, Sackett, and Wiemann (2007b, p. 275) noted, on the basis of the aforementioned empirical findings, that “Honesty-Humility may partially explain variance in integrity [especially overt integrity tests] beyond the Big Five”. Further, Honesty-Humility was also reported to negatively predict males’ sexual harassment proclivities (Lee, Gizzarone, & Ashton, 2003).

As discussed above, there are solid empirical and conceptual grounds to believe that Honesty-Humility figures prominently in determining workplace deviant behaviors. In the next section, we provide a brief review of previous research regarding the relationship between Extraversion and workplace deviance, and discuss the rationales as to why Extraversion may serve as a moderator of the relationship between Honesty-Humility and workplace deviance.

## Extraversion as a Moderator of the Honesty-Humility–Workplace Deviance Relationship

Extraversion, which refers to individual characteristics such as being sociable, talkative, assertive, active, energetic, cheerful, and socially confident, has been found to be predictive of performance in sales and managerial positions and contextual performance (Barrick & Mount, 1991; Hurtz & Donovan, 2000; LePine & Van Dyne, 2001; Organ & Ryan, 1995). However, in relation to workplace deviance, Extraversion shows mixed results. For example, Salgado (2002) showed via meta-analysis that the operational validity of Extraversion for deviant behaviors (e.g. theft, substance use at work, sabotage, etc.) is close to zero (.01), and that its true standard deviation (*SD $\rho$* ) is largest (.18) among the Big Five (see Berry et al., 2007a, for similar findings), which suggests the existence of some moderator(s). Even when examining two recent primary studies, we can see inconsistent results in terms of the sign of the relationship. Lee et al. (2005b) reported that Extraversion showed modest positive relations with overall workplace deviance (composite  $r = .21$ ), whereas Sackett, Berry, Wiemann, and Laczko (2006) reported that Extraversion showed weak negative relations with overall workplace deviance (composite  $r = -.11$ ). Thus, it seems that the effect of Extraversion on workplace deviance is weak overall.

Despite the weak relation that Extraversion has shown with respect to workplace deviance, Extraversion may play some role in determining workplace deviance by strengthening the effects of low Honesty-Humility on workplace deviance. Interestingly, Extraversion has previously been examined as a moderator of the relationship between other personality traits and workplace outcomes. For example, Witt (2002) conducted an investigation based on multiple samples mainly involving women employed in service occupations. The results showed that Extraversion strengthened the relationship between Conscientiousness and overall job performance, such that the effect of Conscientiousness on overall job performance and interview performance was stronger for individuals high on Extraversion (who are more self-confident in social interactions) than for those low on Extraversion. Relatedly, Rubin, Munz, and Bommer (2005) suggested and found that Extraversion strengthened the positive effect of emotion recognition ability



(similar to personality-based Emotional Intelligence) in predicting transformational leadership. That is, the effect of emotion recognition ability on transformational leadership was stronger for individuals high on Extraversion (who are more socially expressive and skillful in the display of their behaviors) than for those low on Extraversion.

LePine and Van Dyne (2001, p. 328) suggested that “extraverts will be less inhibited by conformity pressure” so that they can attempt to challenge and change the status quo—a tendency that might be pro-organisational when it is for the sake of the organisation (see findings reported by Witt, 2002) but potentially counterproductive when it is for the individual’s own interest and gain (as when the individual is low in Honesty-Humility). In the present study, we investigated the latter possibility that high Extraversion, in combination with low Honesty-Humility, may facilitate the incidence of deviant behaviors at work.

In the personality literature, Eysenck (1996) suggested that people with high Extraversion are predisposed to engage in antisocial behaviors partly because they have stronger sensation-seeking tendencies. That is, extraverts prefer and seek higher levels of physical arousal, which may be satisfied by the excitement and thrill of some deviant conduct. Although some meta-analyses investigating the bivariate relationship between Extraversion and antisocial behaviors did not provide strong support for this suggested relationship (e.g. Berry et al., 2007a), Eysenck’s view on Extraversion may still have some validity in interaction with other personality traits. High levels of Extraversion do not necessarily increase the frequency and extent of antisocial behaviors for all people, but it may do so for those who are prone to engaging in such behaviors (e.g. those low in Honesty-Humility). That is, low levels of Honesty-Humility may be necessary for an individual to engage in various antisocial activities, but a high level of Extraversion prompts this individual to engage in such activities even more frequently and boldly. This is plausible given the fact that certain levels of energy and social boldness are required to initiate and engage in behaviors considered deviant and antisocial. Therefore, high levels of Extraversion in combination with high levels of other personality traits related to deviant and antisocial conduct (e.g. low Honesty-Humility, Psychoticism, Psychopathy) might facilitate the engagement in such behaviors. Consistent with this reasoning, Center, Jackson, and Kemp (2005) found a significant interaction effect between Extraversion and Psychoticism for antisocial behaviors in school settings. Relatedly, Schwebel, Severson, Ball, and Rizzo (2006) found a significant interactive effect of anger/hostility and sensation-seeking in predicting self-reported driving violations, such that the relationship between anger/hostility and driving violations was stronger for those with higher, rather than lower, sensation-seeking. Given that sensation-seeking (and risk taking) is moderately positively related to Extraversion (de Vries, de Vries, & Feij, 2009, Table 1), the



results of Schwebel et al. suggest that Extraversion may interact with other personality dimensions in predicting antisocial or deviant behaviors. Research also shows that sensation-seeking is a core component of risk-taking tendencies and behaviors such as drinking, smoking, drug use, and risky sexual behaviors (de Vries et al., 2009; Paunonen, Haddock, Forsterling, & Keinonen, 2003; Zuckerman, 2007). Overall, it seems plausible that dishonest, selfish, and greedy individuals (those with low Honesty-Humility) are more harmful and deviant when they are extraverts rather than introverts because they generally have high levels of social boldness (risk taking) and social skills needed to initiate deviant behaviors (see below) and to escape punishment or embarrassment when caught as long as the deviant behavior in question is neither illegal nor serious.

In terms of the criterion side of the relationship between personality and deviance, Cullen and Sackett (2003) distinguished between initiated and reactive forms of workplace deviance, or counterproductive work behavior (CWB). This distinction has a direct, important implication for the relationship between personality and workplace deviance (Cullen & Sackett, 2003, p. 154): "Initiated CWBs are, as the label implies, initiated . . . to satisfy a motive such as pleasure, greed, thrill seeking, risk taking, or attention seeking. Reactive CWBs, in contrast, are engaged in by the individual in response to some actual or perceived organizational event . . . such as retaliation, revenge, release, or escape." The focus of this paper is on initiated CWBs. Note that most of these deviant workplace behaviors (e.g. stealing, lying, vandalising, playing pranks on others, etc.) require a certain level of energy and social boldness to be "initiated" (Cullen & Sackett, 2003), as well as a certain level of deceit and self-centeredness (e.g. Lee & Ashton, 2004). Therefore, such behaviors are more likely to be committed by those who are both high in Extraversion *and* low in Honesty-Humility than by those who are either high in Extraversion *or* low in Honesty-Humility. Based upon the above discussion, we hypothesise that people with low, rather than high, Honesty-Humility are more likely to act upon their selfish motives and are more likely to engage in initiated deviant behaviors when they are high, rather than low, on Extraversion. Consequently, we hypothesise the following:

*Hypothesis:* The relationships between Honesty-Humility and workplace deviance are contingent upon the level of Extraversion, such that the relationship between Honesty-Humility and workplace deviance will be stronger (i.e. more negative) for those high on Extraversion than for those low on Extraversion.

We test the hypothesised interaction effect across three separate samples obtained from three different countries, namely, Australia, Canada, and the Netherlands. It is noted that all the samples are part of the large data sets used by Lee et al. (2005a), but the interaction effects between Honesty-Humility and Extraversion were not examined previously.

## METHOD

### Participants

University students with employment experience were recruited from Australia, Canada, and the Netherlands; there were 106 Australian participants (45.3% women, mean age = 26.4 years,  $SD = 10.2$ ), 179 Canadian participants (55.9% women, mean age = 20.7 years,  $SD = 3.5$ ), and 131 Dutch participants (64.1% women, mean age = 21.0 years,  $SD = 2.1$ ). All of the participants voluntarily participated in the survey.

### Measures

Participants responded to all personality items on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). The participants were encouraged to respond frankly, as the instructions emphasised that their responses would be anonymous and that the results would be used only for research purposes. For all measures used, the reliability estimates (the coefficients of internal consistency) are acceptable and are shown in Table 1.

*Honesty-Humility.* Honesty-Humility was measured in all samples using an 18-item measure of Honesty-Humility included in the HEXACO Personality Inventory (<http://hexaco.org/>). The psychometric properties of the full-length HEXACO-PI scales are reported in detail in Lee and Ashton (2004).

*Extraversion.* Goldberg's 10-item IPIP Extraversion measure was administered to the Australian and Dutch samples (actual items are found in [http://ipip.ori.org/New\\_IPIP-50-item-scale.htm](http://ipip.ori.org/New_IPIP-50-item-scale.htm)). Participants in the Canadian sample completed the 12-item measure of Extraversion from the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992).

*Workplace Deviance.* An eight-item Workplace Behavior Questionnaire (see Ashton, 1998, pp. 302–303) was administered to the Australian, Canadian, and Dutch samples, and was used as a self-report measure of deviant behavior in the workplace. This scale asks each respondent for estimates regarding the amount of past deviant behavior in the workplace, such as theft, vandalism, unexcused absenteeism, and alcohol use or influence in terms of frequency and amount of money. Sackett (2002, p. 7), in an extensive review of the dimensionality and structure of counterproductive behaviors, indicated that all eight items on this scale fall into the organisational deviance category of Bennett and Robinson (2000) and that the psychometric properties of this scale are similar to those of the scale by Bennett and Robinson. Both scales were initially developed as a self-report measure to assess the

TABLE 1  
Means, Standard Deviations, Reliability Estimates, and Intercorrelations  
among Variables

Sample 1 (Australian Sample;  $N = 104$ )

	<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1	Workplace Deviance	2.08	.99	.83			
2	Honesty-Humility	3.41	.51	-.51	.79		
3	Extraversion	3.23	.66	.09	-.17	.87	
4	Interaction	10.99	2.62	-.26	.48	.78	—

*Note:* Coefficients alpha are shown on the diagonal.

Sample 2 (Canadian Sample;  $N = 179$ )

	<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1	Workplace Deviance	2.05	.91	.81			
2	Honesty-Humility	3.38	.62	-.55	.86		
3	Extraversion	3.51	.56	.12	.00	.79	
4	Interaction	11.87	2.93	-.35	.76	.64	—

*Note:* Coefficients alpha are shown on the diagonal.

Sample 3 (Dutch Sample;  $N = 131$ )

	<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1	Workplace Deviance	1.76	.56	.63			
2	Honesty-Humility	3.31	.47	-.33	.78		
3	Extraversion	3.76	.77	.12	-.19	.90	
4	Interaction	12.40	2.88	-.10	.47	.77	—

*Note:* Coefficients alpha are shown on the diagonal.

degree to which employees engaged in deviant behaviors in the workplace and have been widely used (Berry et al., 2007a). Overall, this scale appeared to be a construct valid and psychometrically sound self-report measure of workplace deviance.

## RESULTS

Table 1 shows the descriptive statistics, internal-consistency reliabilities, and intercorrelations for the measures used in the present study. Across the Australian, Canadian, and Dutch samples from the Lee et al. (2005a) study, Honesty-Humility showed stronger correlations with workplace deviance than did the classic Big Five variables. The proposed hypothesis, which states that the interaction (multiplicative effect) between Honesty-Humility and

Extraversion would account for significant incremental variance in workplace deviance over their additive effects, was tested using moderated multiple regression analyses. Specifically, workplace deviance was first regressed on both Honesty-Humility and Extraversion in Step 1, and then their cross-product term was added to the equation in Step 2. If the interaction term is statistically significant, we can conclude that the proposed hypothesis is supported. Table 2 shows the results of moderated multiple regression analyses conducted separately for each sample. For the Australian and Canadian samples, the interaction terms involving Honesty-Humility and Extraversion produced significant increases in multiple correlations when they were added to the equations involving Honesty-Humility and Extraversion ( $\Delta R^2 = .03$ ,

TABLE 2  
Multiple Regression Results for Interaction Effects between Honesty-Humility and Extraversion in the Prediction of Workplace Delinquency

Sample 1 (Australian Sample;  $N = 104$ )

Step	Variable	$\beta$	LL for $\beta$	UL for $\beta$	p	R	$R^2$
1	Honesty-Humility	-.51	-.68	-.34	.00	.51	.26
	Extraversion	.01	-.24	.26	.93		
2	Honesty-Humility	-.52	-.69	-.35	.00	.54	.29
	Extraversion	.03	-.12	.18	.71		
	Interaction	-.17	-.33	-.01	.04		

Note:  $\Delta R^2 = .03$  ( $\Delta F_{(1,100)} = 4.16, p = .04$ ); LL/UL = lower/upper limit of the 95% confidence intervals.

Sample 2 (Canadian Sample;  $N = 179$ )

Step	Variable	$\beta$	LL for $\beta$	UL for $\beta$	p	R	$R^2$
1	Honesty-Humility	-.55	-.67	-.43	.00	.56	.31
	Extraversion	.12	.00	.24	.06		
2	Honesty-Humility	-.53	-.65	-.41	.00	.58	.34
	Extraversion	.11	-.01	.23	.07		
	Interaction	-.16	-.28	-.04	.01		

Note:  $\Delta R^2 = .03$  ( $\Delta F_{(1,175)} = 6.86, p = .01$ ); LL/UL = lower/upper limit of the 95% confidence intervals.

Sample 3 (Dutch Sample;  $N = 131$ )

Step	Variable	$\beta$	LL for $\beta$	UL for $\beta$	p	R	$R^2$
1	Honesty-Humility	-.32	-.49	-.15	.00	.34	.11
	Extraversion	.06	-.12	.24	.48		
2	Honesty-Humility	-.32	-.49	-.15	.00	.34	.11
	Extraversion	.06	-.12	.24	.49		
	Interaction	.00	.00	.00	.97		

Note:  $\Delta R^2 = .00$  ( $\Delta F_{(1,127)} = .00, p = .97$ ); LL/UL = lower/upper limit of the 95% confidence intervals.

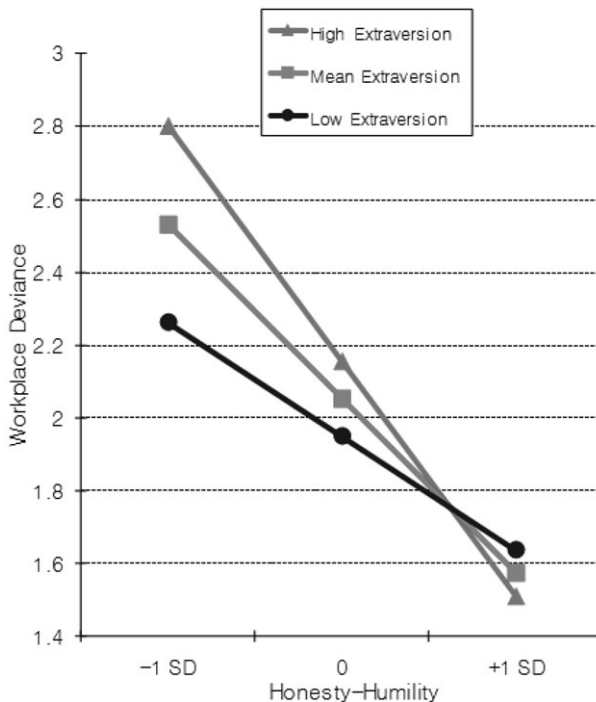


FIGURE 1. Interaction effect between Honesty-Humility and Extraversion on workplace deviance in the Australian sample ( $N = 104$ ). Personality variables were centered for moderated multiple regression analysis. Low Extraversion indicates one standard deviation below the mean (0); high Extraversion indicates one standard deviation above the mean. The mean (0) and scores plus or minus one standard deviation from the mean of Honesty-Humility are plotted.

$\Delta F_{(1,100)} = 4.16, p = .04$ ;  $\Delta R^2 = .03$ ,  $\Delta F_{(1,175)} = 6.86, p = .01$ , respectively). Furthermore, as shown in Figure 1 (based on the Australian sample), the pattern of interaction effects was found to be consistent with the hypothesis. It is noted that the same pattern of interaction effect was also found in the Canadian sample. However, for the Dutch sample, the hypothesised interaction effect was not significant although the interaction pattern was in the hypothesised direction ( $\Delta R^2 = .00$ ,  $\Delta F_{(1,127)} = .00, p = .97$ ).

As a supplementary analysis, we also computed corrected (operational validity) correlations for subsamples of participants who were high ( $z \geq 0$ ) or low ( $z < 0$ ) on Extraversion for the two samples where we detected the hypothesised interaction. The operational validities were  $-.67$  ( $r = -.61, N = 51$ ) and  $-.44$  ( $r = -.41, N = 53$ ) for high- and low-Extraversion Australian participants and  $-.68$  ( $r = -.62, N = 87$ ) and  $-.52$  ( $r = -.47, N = 92$ ) for

high- and low-Extraversion Canadian participants. This additional information further supports our hypothesis that the correlation between Honesty-Humility and deviance is higher for those high, rather than low, in Extraversion.

## DISCUSSION

Overall, the results of these analyses confirmed (a) that Extraversion itself did not predict workplace deviance; (b) that (low) Honesty-Humility predicted workplace deviance well; and (c) that Honesty-Humility, as hypothesised, interacted with Extraversion in predicting workplace deviance (except for the Dutch sample; see below for more details). More specifically, results from the two samples show that individuals with lower Honesty-Humility and higher Extraversion engaged more frequently in workplace deviance than did those with the same level of Honesty-Humility and lower Extraversion. That is, the negative relationship between Honesty-Humility and workplace deviance was stronger for those higher on Extraversion than for those lower on Extraversion.

We do not know why the hypothesised interaction was not observed for the Dutch sample. Further examinations of the results (means and *SDs*), however, reveal that there was greater range restriction and a lower base rate for workplace deviance in the Dutch sample (*SD* = .56; mean = 1.76) than in the other two samples based on the same scale (*SDs* = .75–.99; means = 2.05–2.06). In addition, the workplace deviance measure used was less (internally) reliable in the Dutch sample (coefficient  $\alpha$  = .63) than in the other samples (coefficients  $\alpha$  = .81–.87). That is, measurement error in the criterion measures, possibly coupled with range restriction, may have nullified the interaction effect hypothesised.

## Theoretical and Practical Implications

As discussed earlier, the results suggested that those low in Honesty-Humility have a tendency to engage in workplace deviance, and that this link might be stronger for individuals high in Extraversion—those who are more energetic and daring. The moderating role that Extraversion plays between Honesty-Humility and workplace deviance may suggest that deviant behaviors commonly observed in the workplace (e.g. theft, fraud, etc.) may be facilitated by having a fairly high level of energy and social boldness. It is interesting to note that Extraversion has previously been found to play a similar moderating role in the relationship between Conscientiousness and citizenship behaviors (King et al., 2005). Specifically, employees high on Conscientiousness engaged in citizenship behaviors more often when they were also high on Extraversion. This finding may be interpreted as suggesting that many citizenship behaviors

at work (e.g. helping and volunteering) are also facilitated by the energy and social boldness that characterise Extraversion. As such, extraverts have the potential either to harm or to help the organisation depending on the levels of other personality traits such as Honesty-Humility and Conscientiousness. Here it may be useful to note the differences between our study and that of King et al. (2005). Their study examined contextual performance as a main outcome variable. However, our study examined workplace deviance, which is negatively related (yet not exactly opposite) to contextual performance, which has a different nomological net (Berry et al., 2007a; Dalal, 2005; Sackett et al., 2006). From a practical perspective, we think that the results of the current study are important because they suggest that perhaps Extraversion, given its interaction effect with other personality traits, should be included as a personality predictor for workplace deviance. Based only on the lack of a bivariate relationship with workplace deviance (Berry et al., 2007a), we probably would have concluded otherwise. It should be noted that the increment in multiple *R* from adding the interaction term between Extraversion and Honesty-Humility is rather small (.02–.03). However, the small increment should not be ignored given the potentially enormous harm due to workplace deviance. Screening out a few applicants with a tendency to engage in workplace deviance before hiring should not be equated with screening out a few applicants with a tendency to be low performers. Workplace deviance is not visible and is not easy to detect, and its negative effect is often cumulative. Moreover, any increase in validity is a benefit, especially when there are no additional costs associated with the increased validity (Le et al., 2011).

We tested the interaction effect between Honesty-Humility and Extraversion on workplace deviance using an indirect method involving statistical interaction. However, a recent study by Judge and Erez (2007) suggested that interaction effects could be tested directly by assessing the effect of a personality trait located interstitially between the two focal personality variables (e.g. a trait located along the bisector of any two Big Five factors on a circumplex model). Specifically, Judge and Erez (2007) found a significant synergistic interaction between Emotional Stability and Extraversion for overall job performance using both methods. They suggested that the intersection method, which involves directly measuring the personality variables located interstitially between the factors of interest, is advisable in personnel selection settings (pp. 583, 594) given the ease of administration, scoring, and interpretation of scales constructed to measure the traits that represent blends of the two factors. Following this idea, it is noteworthy that one personality trait located interstitially between the (low) Honesty-Humility and (high) Extraversion dimensions is Narcissism (Raskin & Hall, 1981), which is characterised by strong feelings of entitlement. As reported in Lee and Ashton (2005), Narcissism correlated positively with Extraversion ( $r_s = .46-.49$ ) as well as negatively with Honesty-Humility ( $r = -.53$ ), and hence



constitutes a bisector of the two personality dimensions: high Extraversion and low Honesty-Humility. Thus, it seems that highly narcissistic employees, when in a situation that permits the manifestation of their traits, are more likely to engage in workplace deviance as a way to maximise their own interests and satisfy feelings of entitlement. Future research should further examine whether the multiplicative effects of Honesty-Humility and Extraversion are carried by Narcissism. If they are, as suggested by the example of Judge and Erez (2007), then Narcissism may be a personality trait of particular importance in personnel selection settings.

The findings in the current study have implications for HR practitioners who frequently hire and place applicants for jobs where deviant behaviors are particularly problematic (e.g. finance, information security, and correction officer jobs). For these types of position, the least desirable applicants may well be those low on Honesty-Humility and high on Extraversion—those who are narcissistic persons having a strong sense of entitlement. Applicants with this personality profile could be seen as outgoing and friendly on the surface, but they are more likely to be presumptuous and greedy, and inclined to engage in workplace deviance for the pursuit of selfish gains. As such, their real identity is not easily detected, but as shown above, they have high levels of proclivity for engaging in deviant behaviors at work. Thus, cost-effective and valid supplementary methods, such as interviews, may be used in combination with personality assessment in screening out these deviance-prone applicants (see Witt, 2002). In sum, HR practitioners should pay attention to possible interactions between personality traits and to traits that are located at the intersections of the traditional factors (cf. Judge & Erez, 2007; King et al., 2005; Witt, 2002; Witt et al., 2002).

## Limitations and Future Research Directions

As is the case with most applied research, this study has several limitations. First, one limitation of the present research was the fact that workplace deviance was measured solely via self-reports in all samples, a common situation in workplace deviance research (see Berry et al., 2007a). Although self-reports of workplace deviance are useful considering the fact that many deviant behaviors tend to be unobservable to others (e.g. supervisors) at work (Sackett et al., 2006, p. 460), they also raise problems associated with common method variance, which results in inflated relations when the other variables (e.g. personality characteristics) are measured via self-reports as well (see Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We should note, however, that the problem of common method variance is of less concern for the present research, whose primary focus is on interaction effects. Evans (1985) showed via a series of Monte Carlo simulations that common method variance is not a problem in testing interaction effects. That is, common method variance may

cause some main effects to be inflated, which in fact makes it more difficult to detect a unique interaction effect (see also Siemsen, Roth, & Olivera, 2010). Additional studies, nonetheless, should consider replicating the interaction effect found in this study by using supervisory or co-worker ratings of workplace deviance (Campbell & Fiske, 1959). The assessment of the criterion domain of workplace should be more carefully designed given its unique characteristics (e.g. being private, unobservable; Sackett et al., 2006).

Second, we used an overall score for Extraversion in this study, but Extraversion has multiple distinct facets (e.g. Sociability, Energy, Assertiveness, Positive Affectivity). Given the use of brief measures of Extraversion for practical reasons, we could not test potentially differential relationships across facets of Extraversion. As discussed, the energy/social boldness facet (Costa & McCrae, 1992) may be a key construct in our findings if our theoretical arguments are correct, but to be certain, future studies need to replicate our findings using facet-based Big Five inventories, such as the NEO-PI-R (Costa & McCrae, 1992) and or HEXACO-PI-R (Lee & Ashton, 2006). An anonymous reviewer raised two suggestions: (a) the positive affectivity that characterises Extraversion (Watson & Clark, 1997) may weaken rather than strengthen the negative effect of low levels of Honesty-Humility in predicting workplace deviance, because individuals are more likely to help others when they are in a positive mood (Borman, Penner, Allen, & Motowidlo, 2001), and (b) the moderating effect of Extraversion may not be due to extraverts being more likely to engage in workplace deviance when they are low in Honesty-Humility, but rather to extraverts being more likely to share or disclose their transgressions on a survey. However, current meta-analytic evidence indicates that *self-reports* of Extraversion are not associated with *self-reports* of workplace deviance (Berry et al., 2007a). We only speculate that there might be other moderators for this relationship, or more primary studies should be conducted until we can confidently conclude on this. Hence, we suggest that more studies be conducted using various facets of Extraversion to see whether and which narrow traits of Extraversion are more predictive than global Extraversion of various workplace deviance criteria measured via legitimate methods (cf. Hough, 1992). Likewise, we also need to examine various facets of Honesty-Humility. This way, future studies can shed light on the debate on narrow versus broad traits of personality in personnel selection (e.g. Ashton, 1998; Casillas, Robbins, McKinniss, Postlethwaite, & Oh, 2009).

Third, in all samples, our data were not based on full-time employees, but were mainly based on part-time student employees who were juggling work and study. Thus, our findings may not be generalisable to full-time employees. Ideally, future studies should replicate our findings using full-time employees across various occupations and organisations.

Lastly, future studies should extend the scope of the present research by investigating why Honesty-Humility and its interaction with Extraversion is

related to workplace deviance. As Hurtz and Donovan (2000, p. 877) commented, "if we are to truly understand the relationship between personality and job performance, we must move beyond this bivariate relationship and toward specifying the intervening variables that link these domains". For example, Hilbig and Zettler (2009) found, based on an experimental study using resource allocation games, that a prosocial orientation is likely to follow from high levels of Honesty-Humility, whereas proself orientation follows from low levels of Honesty-Humility. That is, the relationship between Honesty-Humility and workplace deviance may be mediated through a lack of prosocial orientation (that is, through a proself orientation). As discussed above, this mediated relationship is stronger for extraverts than for introverts. More studies are needed to examine mediating variables between personality and performance both at narrower and broad levels in work settings, and this will lead to a better understanding of the role of personality in understanding individual differences in human behavior, including job performance.

## CONCLUSION

The scientific knowledge regarding the personality predictors of workplace deviance has accumulated rapidly using the Big Five (Berry et al., 2007a; Salgado, 2002). However, recent studies have consistently shown that Honesty-Humility provides an improvement in the prediction of workplace deviance (e.g. Lee et al., 2005a; Marcus et al., 2007). Further, the present study has shown that the interaction between Honesty-Humility and Extraversion increases the prediction for workplace deviance above and beyond the additive effects of Honesty-Humility and Extraversion. Specifically, the relationship between Honesty-Humility and (lack of) workplace deviance was stronger for those higher on Extraversion than for those lower on Extraversion. Thus, HR practitioners who frequently hire for jobs where deviant behaviors are more prevalent and problematic might focus especially on screening out those who are both low on Honesty-Humility and also high on Extraversion: dishonest extraverts. In sum, the finding that Honesty-Humility and Extraversion interact to increase validity in predicting workplace deviance should inform the way that researchers and practitioners think about using the interaction of relevant personality traits. The results of the current study also suggest that future research efforts might be usefully directed toward the study of the interactions between Honesty-Humility and other personality traits in predicting other types of non-task performance.

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